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1983
South Dakota
**Motor Vehicle
Traffic Accident
Summary**



Prepared By
Department of Commerce and Regulation
Highway Safety Program

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Governor

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I. Introduction

The South Dakota Motor Vehicle Accident Summary was developed to provide an overview of the South Dakota traffic accident picture, as well as make frequently requested information available. Information from 1983 comprises the major portion of the book; however, basic historic trends are also provided for reference.

The Motor Vehicle Accident Summary is divided into two main sections, Historical Trends and 1983 Motor Vehicle Accident Profile. The Historical Trend section provides information on alcohol involvement in motor vehicle crashes and results of South Dakota's efforts to combat the drinking driver. Also in this section, data is provided on basic accident trends. The 1983 Accident Profile section details the accident picture for 1983. There is also a glossary of terms and three appendices to provide further information.

The majority of the information in this book is provided by the Accident Records Program within the Department of Commerce and Regulation. State law requires an accident report to be filed for each motor vehicle traffic accident resulting in the death or injury of a person or accumulated property damage of \$400 or more. Law enforcement agencies provide the accident reports to Accident Records. These reports are available to the public for a fee of two dollars.

Examples of reports available through Accident Records are:

STANDARD REPORTS - These reports provide the user with a standard set of summary information for a pre-selected subset of all accidents, e.g., all accidents involving a drinking driver.

PLOT MAPS - These maps supply the user with a graphic display on which the location of each accident in a given geographic area has been plotted on transparent paper and scaled to overlay maps provided by the Department of Transportation.

SPECIAL REQUESTS - Special requests are answered using several computer packages, one of which is an on-line query system which provides almost immediate response to requests of a very specific nature.

For additional information or copies write or call:

Department of Commerce and Regulation
Accident Records Program
118 West Capitol Avenue
Pierre, SD 57501-2080
Phone: (605)773-3868

SOUTH DAKOTA
STATISTICAL SUMMARY
1983

Number of reported motor vehicle traffic accidents: 14,887

Number of motor vehicle traffic accident injuries: 6,264

Number of motor vehicle traffic accident fatalities: 175

Percent of drivers in fatal accidents who had been drinking: 33%

Number killed in alcohol related accidents: 89

Number injured in alcohol related accidents: 1,513

Number of pedestrians killed: 20

Number of motorcyclists killed: 12

Number of bicyclists killed: 1

Percent of licensed drivers under 25: 23%

Percent of accident-involved speeding drivers under 25: 57%

Percent of accident-involved drinking drivers under 25: 55%

Average BAC of drivers arrested for DWI: 0.19%

Number of DWI convictions: 9,933

Number of felony DWI State Penitentiary inmates: 49

Seatbelt use rate of accident-involved drivers: 6.5%

Helmet use rate of accident-involved motorcyclists: 32.1%

Number of unrestrained children under 5 years of age killed in
motor vehicle accidents: 5

Number of properly restrained children under 5 years of age
killed in motor vehicle accidents: 0

Average travel speed on South Dakota highways: 58.7 MPH

Percent of motorists exceeding 55 MPH: 48%

II. HISTORICAL TRENDS

Alcohol Involvement

Alcohol has been a significant factor in motor vehicle accidents over the years, especially in fatal and injury accidents. Even though the number of persons killed and injured in alcohol related accidents has declined recently, in 1983 over 50 percent of the fatalities were alcohol related (See Table 2-1 and Figures 2-1 and 2-2).

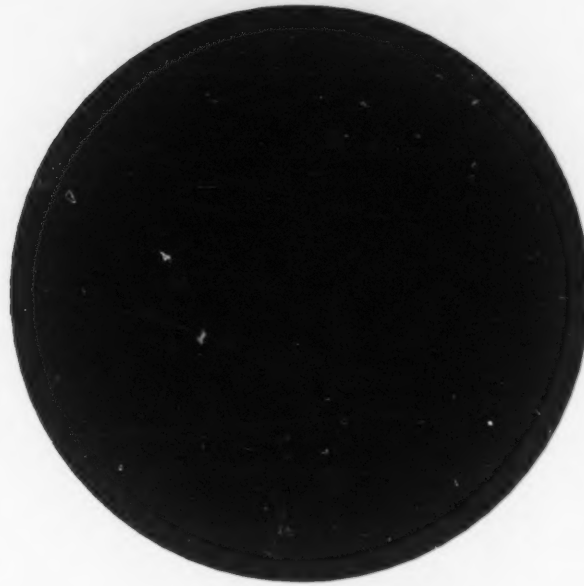
TABLE 2-1
ALCOHOL INVOLVED ACCIDENTS AS PERCENT OF ALL ACCIDENTS

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Total Accidents	15.2 (2438)	17.4 (2588)	18.0 (2591)	14.0 (2044)	13.5 (2006)
Fatal Accidents	55.6 (94)	55.9 (105)	61.7 (100)	59.7 (77)	49.0 (72)
Injury Accidents	23.2 (1122)	27.0 (1286)	27.4 (1266)	22.2 (930)	22.3 (928)
PDO Accidents	11.0 (1222)	12.1 (1197)	12.8 (1225)	10.1 (1037)	9.5 (1006)
Fatalities	58.3 (123)	54.4 (124)	62.1 (110)	58.1 (86)	50.9 (89)
Injuries	25.7 (1845)	29.3 (2094)	29.0 (1964)	23.5 (1453)	24.2 (1513)

NOTE: 1979-1982: Alcohol Involvement for PDO and Injury Accidents is based on an indication of alcohol use by the investigating officer.
Alcohol Involvement for Fatal Accidents is based upon a positive BAC result and/or indication of alcohol use by the investigating officer.
1983: All Accidents - At least one driver, pedestrian or bicycle driver had been drinking in the opinion of the investigating officer.

Source: Department of Commerce & Regulation: Accident Records

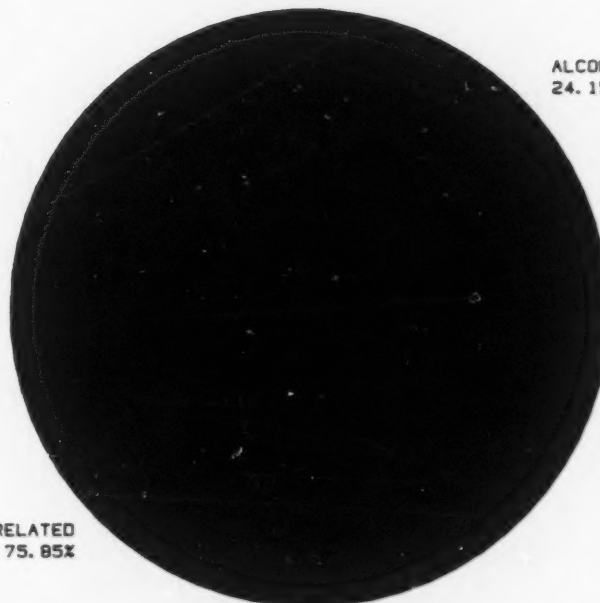
ALCOHOL RELATED
51.15%



NON ALC RELATED
48.85%

FIGURE 2-1 1983 TRAFFIC FATALITIES
ALCOHOL RELATED V. NON ALCOHOL RELATED

ALCOHOL RELATED
24.15%



NON ALC RELATED
75.85%

FIGURE 2-2 1983 TRAFFIC INJURIES
ALCOHOL RELATED V. NON ALCOHOL RELATED

The State of South Dakota initiated a statewide effort during 1981 to lessen the impact of the drinking driver. After two years of increased DWI enforcement and public awareness efforts, an impact evaluation was conducted to quantify the effects these statewide efforts have had on reducing alcohol related fatal and injury accidents.

The data used for this analysis consisted primarily of monthly counts from July, 1979 through September, 1983 of DWI arrests, motor vehicle traffic accidents, and vehicle miles traveled. October, 1981 was chosen as the beginning of the project or when the increased enforcement and public awareness efforts began. Accident data was limited to fatal and injury accidents to eliminate the confounding effects introduced with property damage only accidents. Vehicle miles traveled data was used to reflect changes in the economy and its relationship with traffic accidents (see Appendix A for data used in the evaluation).

DWI arrest data was used as a measure of the efforts to remove the drinking driver and its relationship with traffic accidents.

The average monthly count of alcohol related fatal accidents decreased 32 percent after project implementation, October 1981 through September 1983. The average monthly count of alcohol related fatal and injury accidents decreased 27%. DWI arrests increased by 77% per month. The vehicle miles traveled remained the same (see Table 2-2 and Figure 2-3).

TABLE 2-2
COMPARISON OF ACCIDENT AND ARREST ACTIVITY
BEFORE AND AFTER PROJECT IMPLEMENTATION

	<u>Average Monthly Counts</u> <u>Before</u>	<u>After</u>	<u>Percent</u> <u>Change</u>
Fatal Accidents			
All	15.8	11.7	-26%
Alcohol Related	9.3	6.3	-32%
Non-Alcohol Related	6.5	5.4	-17%
Fatal & Injury Accidents			
All	419.4	362.0	-14%
Alcohol Related	118.2	85.9	-27%
Non-Alcohol Related	301.2	276.1	-8%
DWI Arrests	369.2	653.2	+77%
Vehicle Miles Traveled (In Millions)	471.6	471.2	No Change

Source: Department of Commerce & Regulation: Accident Records

A R R E S T S / A C C

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MONTHLY DATA FROM JULY, 1979 THROUGH SEPTEMBER, 1983

The Box-Jenkins approach to time series analysis was the method chosen for the evaluation. This method is useful for analyzing highway safety data which has been collected over time at equal intervals (such data is called time series) because it allows for the identification of seasonal cycles and long-term trends which often exist in this type of data. Once identified, such cycles and trends can be accounted for, thus preventing them from being mistakenly identified as the impact of the project.

The time series analysis estimated the reduction of fatal and injury crashes at about 24 fatal and injury accidents per month. Furthermore, the reduction in fatal and injury crashes is due to causes other than the economy. To determine if the crash reduction was due to the increased alcohol countermeasures, alcohol related fatal and injury crashes and DWI arrests were analyzed.

The estimated reduction in alcohol related fatal and injury crashes is about 27 per month. This more than accounts for the total fatal and injury crash reduction. The alcohol related fatal and injury accidents are correlated to DWI arrest levels. The correlation is negative, which indicates that as arrests increase, the number of crashes tend to decrease; furthermore, it takes about 6 months for this impact to take effect.

In summary, it was determined that the increased efforts to remove the drinking driver and not the economy were responsible for the decline in traffic crashes. In actual numbers, there have been 27 fewer alcohol related fatal and injury accidents per month since October, 1981. In looking at just fatal accidents, there have been 3.7 fewer alcohol related fatal accidents per month since October, 1981. The reduction of these accidents translates into saving about 102 lives and preventing 972 non-fatal accidents between October, 1981 and September, 1983.

Motor Vehicle Accidents

Table 2-3 provides a yearly comparison of South Dakota's motor vehicle traffic accidents from 1960 through 1983. Any comparison of motor vehicle accidents must be made with caution due to the changes in the definition of a reportable accident. For example, in the late 1970's the definition of a fatality caused by a motor vehicle accident was changed from the death occurring up to one year after the accident to occurring within 30 days after the accident. Although this would not change the fact that the number and rate of fatalities has shown a steady decline, the decline in the last few years would not have been as much. There does not appear to be a single reason why there are fewer fatalities; however, the national 55 mph speed limit law initiated in 1974 has probably had the most impact. Other factors include improvements in the highways, safer vehicles, and traffic enforcement efforts especially in the drinking driving area. Also of importance is the fact that both the number of registered motor vehicles and the vehicle miles traveled continue to increase.

TABLE 2-3
SOUTH DAKOTA YEARLY COMPARISON
OF MOTOR VEHICLE TRAFFIC FATALITIES, INJURIES,
ACCIDENTS, MILES TRAVELED, & REGISTERED MOTOR VEHICLES

Year	Fatalities	Rate ¹	Injuries	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Miles Traveled +(000,000)	Registered Motor Vehicles +(000)
1960	233	6.94	3,656	7,187	191	2,121	4,875	3,359	351
1961	228	6.75	3,848	7,281	184	2,313	4,784	3,379	361
1962	246	6.77	4,248	8,805	191	2,592	6,022	3,631	377
1963	220	5.83	4,123	8,874	185	2,530	6,159	3,776	386
1964	270	7.03	4,569	9,349	211	2,816	6,322	3,839	387
1965	244	6.13	4,685	10,015	194	2,880	6,941	3,983	396
1966	265	6.50	5,072	10,821	205	3,087	7,529	4,075	402
1967	224	5.41	5,286	12,154	183	3,250	8,721	4,142	407
1968	255	5.91	5,612	14,061	215	3,396	10,450	4,313	409
1969	296	6.79	5,921	16,565	219	3,584	12,762	4,361	422
1970	238	5.12	5,492	16,165	189	3,395	12,581	4,648	427
1971	262	5.36	6,705	16,995	210	4,152	12,633	4,884	444
1972	294	5.83	6,718	17,883	235	4,267	13,381	5,039	467
1973	286	5.57	6,774	14,985 ²	228	4,321	10,436	5,136	494
1974	229	4.47	6,211	11,727	203	4,077	7,447	5,126	519
1975	198	3.82	6,769	15,146 ³	163	4,398	10,585	5,186	533
1976	224	4.07	7,423	15,755	188	4,840	10,727	5,503	554
1977	211	3.67	7,603	18,020	180	5,013	12,827	5,754	575
1978	194	3.33	7,861	18,085 ⁴	168	5,263	12,654	5,830	599
1979	211	3.76	7,189	16,059	165	4,826	11,064	5,614	616
1980	228	4.18	7,147	14,845	188	4,770	9,887	5,456	622
1981	177	3.17	6,771	14,375	162	4,614	9,599	5,582	637
1982	148	2.68	6,174	14,605	129	4,192	10,284	5,528	640
1983	175	2.99	6,264	14,887	147	4,162	10,578	5,847	655

¹Number of fatalities per 100 million vehicle miles traveled.

²Prior to July 1, 1973 a reportable motor vehicle traffic accident was defined as one involving a death, injury or property damage of \$100 or more to one person. July 1, 1973 the PDO amount changed to \$250.

³January 1, 1975 the definition of a reportable motor vehicle traffic accident was revised as follows: an accident involving a death, injury, or accumulated property damage of \$250 or more.

⁴July 1, 1978 the definition of a reportable motor vehicle traffic accident was revised as follows: an accident involving a death, injury or accumulated property damage of \$400 or more.

Source: Department of Commerce & Regulation: Accident Records

The fatality rate per 100 million vehicle miles traveled from 1974-1983 for South Dakota, states surrounding South Dakota and the nation is shown in Table 2-4. South Dakota's rate, the national rate and the rate of those states bordering South Dakota have all shown a decline over the last ten years. Figure 2-4 compares South Dakota with the national rate and two comparable rural states, North Dakota and Wyoming.

TABLE 2-4
FATALITY RATE COMPARISON
1974-1983

State	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
South Dakota	4.5	3.8	4.1	3.7	3.3	3.8	4.2	3.2	2.7	3.0
Iowa	4.0	3.8	4.3	3.4	3.3	3.5	3.4	3.3	2.5	2.5
Minnesota	3.5	3.0	3.0	3.0	3.4	3.0	3.0	2.7	2.0	1.8
Montana	5.1	5.2	4.9	4.9	3.9	5.0	4.9	4.8	3.8	4.0 Est.
Nebraska	3.0	2.9	2.8	2.4	2.4	2.3	3.0	2.8	2.0	1.9
North Dakota	3.7	3.8	3.8	3.6	3.5	2.5	2.9	3.0	2.8	2.1
Wyoming	5.7	5.8	6.3	5.6	5.2	5.2	5.2	5.4	3.9	3.8 Est.
National	3.5	3.3	3.2	3.3	3.3	3.3	3.4	3.2	2.8	2.6

Note: Fatality Rate is the number of traffic fatalities per 100 million vehicle miles traveled.

Source: Department of Commerce & Regulation: Accident Records

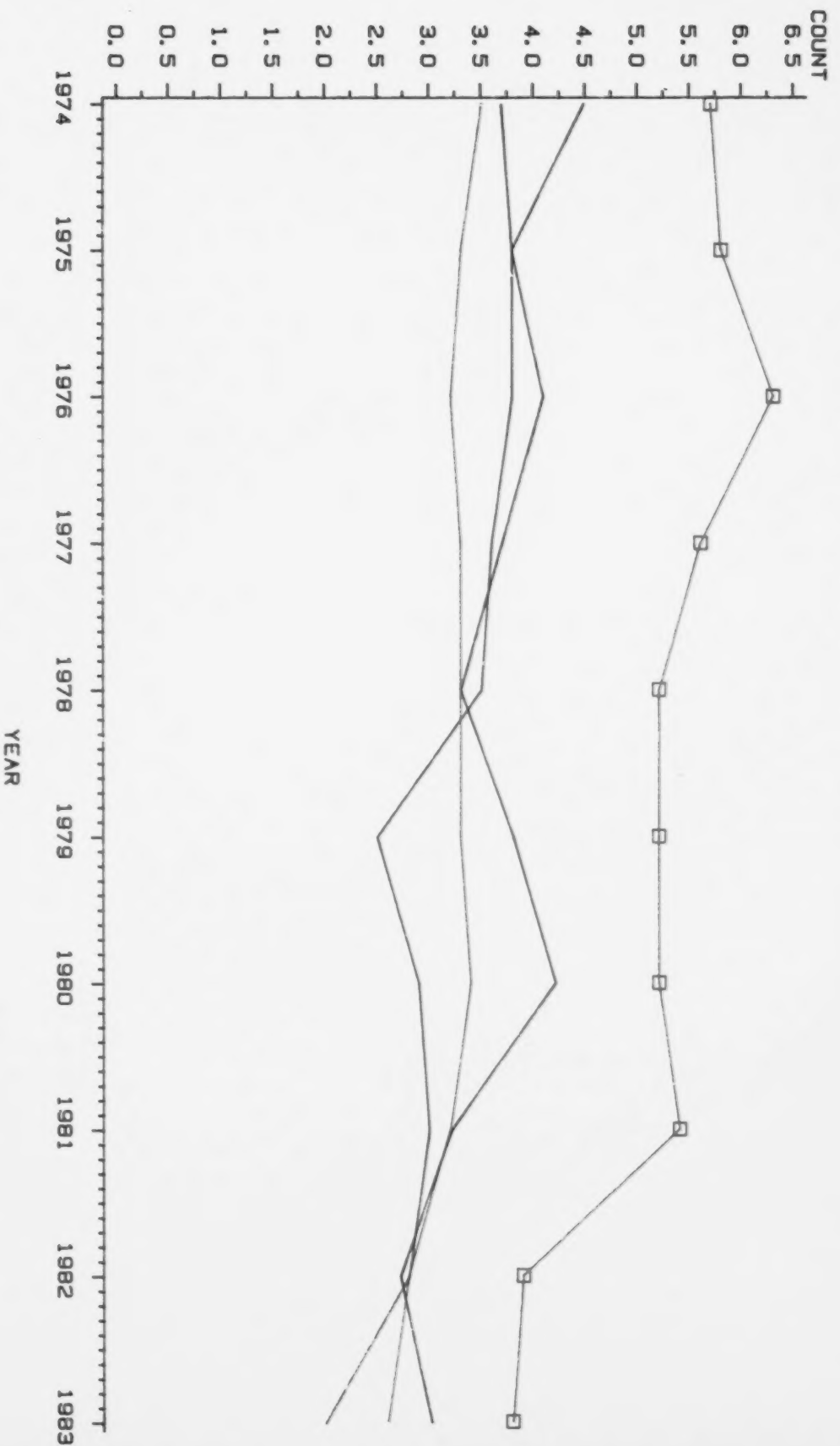


FIGURE 2-4 FATALITY RATE COMPARISON
1974 - 1983

III. 1983 MOTOR VEHICLE ACCIDENT PROFILE

Introduction

This section profiles the reported motor vehicle traffic accidents for 1983. Information will be given on the events surrounding accidents or what happened, where the accidents are occurring, when accidents happen, who is involved, and factors that contribute to accidents or why they are occurring.

During 1983 there were 14,887 reported motor vehicle traffic accidents, the majority being property damage only 10,578 (71%). Injury accidents accounted for 4,162 (28%) of the accidents while 147 (1%) were fatal accidents. There were 6,264 persons injured and 175 persons killed in accidents during 1983 (see Table 3-1).

TABLE 3-1
FATALITIES AND SEVERITY OF INJURIES OF DRIVERS,
PASSENGERS, PEDESTRIANS, AND BICYCLISTS
1983

	Fatalities		Incap Injury		Non-Incap Inj		Poss Injury		Total Injury	
	No.	%	No.	%	No.	%	No.	%	No.	%
Drivers	94	53.7	725	57.4	1,778	61.0	1,368	65.6	3,871	61.8
Passengers	60	34.3	448	35.5	1,027	35.2	683	32.7	2,158	34.5
Pedestrians	20	11.4	69	5.5	50	1.7	20	1.0	139	2.2
Bicyclists	1	0.6	21	1.6	60	2.1	15	0.7	96	1.5
Total	175	100.0	1,263	100.0	2,915	100.0	2,086	100.0	6,264	100.0

Note: Incapacitating - severe lacerations, broken limbs or unable to leave the scene of the accident without assistance.

Not Incapacitating - minor lacerations, lumps on the head, abrasions and bruises.

Possible - momentary unconsciousness, limping, nausea, and complaint of pain and injuries not evident.

Source: Department of Commerce & Regulation: Accident Records

Table 3-2 provides information on persons killed and injured by method or mode of transportation. During 1983 the majority of the fatalities occurred in passenger vehicles. Also over the one year period 20 pedestrians, 12 motorcyclists, and one bicyclist were killed (see Figures 3-1 and 3-2).

TABLE 3-2
FATALITIES AND INJURIES BY VEHICLE TYPE AND PEDESTRIANS
1983

<u>Vehicle Type</u>	<u>Injury Classification</u>	
	<u>Killed</u>	<u>Injured</u>
Passenger Cars, Pickups, Vans	72.5% (127)	81.5% (5,106)
Pedestrians	11.4% (20)	2.2% (139)
Motorcycle	6.9% (12)	9.3% (582)
Trucks (All)	4.0% (7)	4.0% (248)
Farm Machinery & Heavy Equipment	2.9% (5)	0.2% (14)
Motor Homes	1.7% (3)	0.2% (14)
Bicycle	0.6% (1)	1.6% (100)
Other	0.0% (0)	1.0% (61)

Note: Other Includes Bus, Moped, Snowmobile, Train, and Stagecoach.

Source: Department of Commerce & Regulation: Accident Records

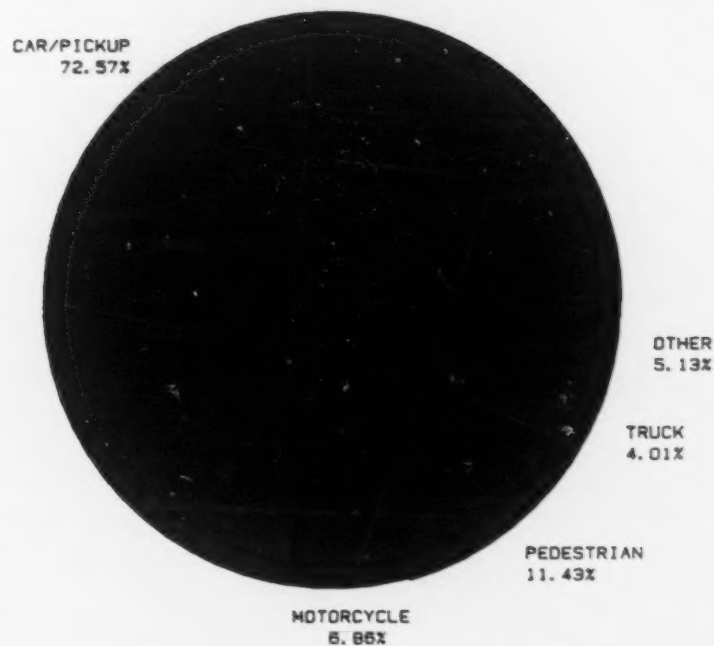


FIGURE 3-1 FATALITIES BY VEHICLE TYPE 1983
PEDESTRIAN AND BICYCLIST

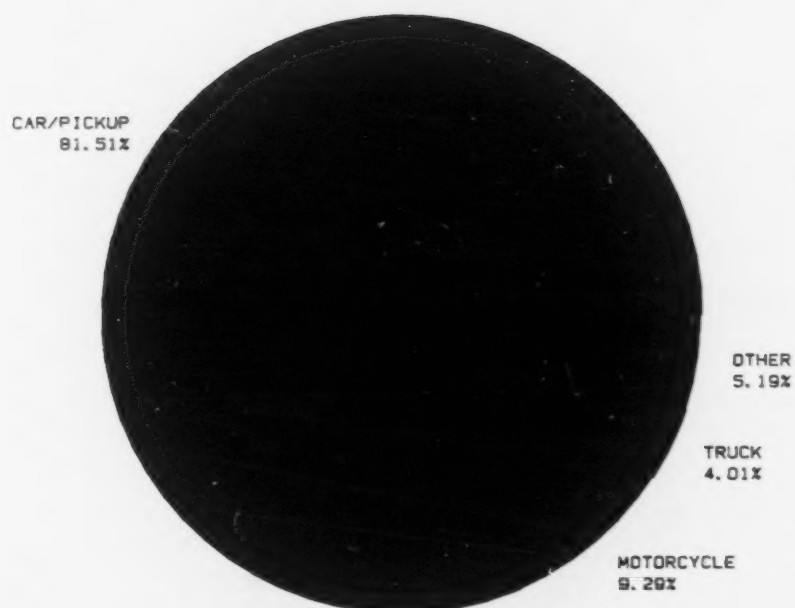


FIGURE 3-2 INJURIES BY VEHICLE TYPE 1983
PEDESTRIAN AND BICYCLIST

First Harmful Event

The initial incident which causes injury or damage is referred to as the first harmful event. A motor vehicle collision with an object such as another motor vehicle (parked and not parked), a fixed or other object, a pedestrian, an animal, a bicycle or a railroad vehicle accounted for over 88% of the first harmful events. The other 11+ percent are motor vehicles overturning or other, such as a person falling out of a motor vehicle (see Table 3-3).

TABLE 3-3
FIRST HARMFUL EVENT
1983

First Harmful Event	Total Accd.		Fatal Accd.		Injury Accd.		PDO Accd.	
	No.	%	No.	%	No.	%	No.	%
Motor Vehicle Collision With:								
Another MW (Not Parked)	8,113	54.5	60	40.8	2,105	50.6	5,948	56.2
A Fixed or Other Object	2,324	15.6	25	17.0	777	18.7	1,522	14.4
An Animal	1,287	8.6	1	0.7	72	1.7	1,214	11.5
A Parked Motor Vehicle	1,200	8.1	1	0.7	133	3.2	1,066	10.1
A Pedestrian	138	0.9	18	12.2	120	2.9	0	0.0
A Bicyclist	98	0.7	1	0.7	96	2.3	1	0.0
A Railroad Vehicle	29	0.2	1	0.7	17	0.4	11	0.1
Non-Collision (Overturning or Other)	1,698	11.4	40	27.2	842	20.2	816	7.7
Total	14,887	100.0	147	100.0	4,162	100.0	10,578	100.0

Source: Department of Commerce & Regulation: Accident Records

The majority of the collisions involve two or more motor vehicles in transport (not parked), followed by collisions with a fixed or other object. There were also a number of collisions with animals and parked motor vehicles. Motor vehicles colliding also account for the largest number of first harmful events in fatal accidents, 60 or 40.8%. However, non-collisions are second with 40 or 27.2% of the fatal accidents. Collisions with fixed or other objects and pedestrians also account for a large number of the fatal accidents.

Manner of Collision

The most common type or manner of collision between two or more vehicles is angle collisions, 37%, which usually occur at intersections; this holds true for all three accident levels - fatal, injury and PDO. Rear-end collisions account for 24.6% of the total collisions and are second to angle collisions in prevalence. Head-on collisions are over-represented in the fatal collisions, 30.6%, and are second to angle collisions which account for 33.9% of the fatal collisions. The majority of the injury-producing collisions are angle and rear-end, 39.0% and 30.8% respectively (see Table 3-4).

TABLE 3-4
MANNER OF COLLISION FOR ACCIDENTS INVOLVING A COLLISION
BETWEEN TWO OR MORE MOTOR VEHICLES
1983

Manner of Collision	Total Accidents		Fatal Accidents		Injury Accidents		PDO Accidents	
	No.	%	No.	%	No.	%	No.	%
Rear-End	2,027	24.6	10	16.1	680	30.8	1,337	22.4
Head-On	218	2.7	19	30.6	111	5.0	88	1.5
Rear-to-Rear	4	0.1	0	0.0	1	0.0	3	0.1
Angle	3,045	37.0	21	33.9	860	39.0	2,164	36.3
Sideswipe-Same Direction	758	9.2	6	9.7	116	5.3	636	10.7
Sideswipe-Opposite Direction	340	4.1	2	3.2	76	3.5	262	4.4
Turning Movement	1,286	15.6	4	6.5	326	14.8	956	16.0
Backing Movement	549	6.7	0	0.0	36	1.6	513	8.6
Total	8,227	100.0	62	100.0	2,206	100.0	5,959	100.0

Source: Department of Commerce & Regulation: Accident Records

Highway System

The number of reported accidents by each type of highway, Interstate, U.S. and state highways, county and local roads, and city streets and alleys are presented in Table 3-5. The majority of the injury and PDO accidents happened in cities and towns. Almost half of the fatal accidents occurred on U.S. and state highways, 28.6% on county and local roads, 11.6% in cities and towns, and 10.2% on the Interstates. Overall, the Interstate system had a small percentage of the reported accidents.

TABLE 3-5
ACCIDENTS BY TYPE OF HIGHWAY
1983

Type of Highway	Total Accidents		Fatal Accidents		Injury Accident		PDO Accidents	
	Number	%	Number	%	Number	%	Number	%
Interstate	1,082	7.3	15	10.2	298	7.2	769	7.3
US/State Hwys.-Rural	2,647	17.8	73	49.6	856	20.6	1,718	16.2
Co./Local Rds.-Rural	2,366	15.9	42	28.6	766	18.4	1,558	14.7
City Streets/Alleys	8,792	59.0	17	11.6	2,242	53.8	6,533	61.8
Total	14,887	100.0	147	100.0	4,162	100.0	10,578	100.0

Source: Department of Commerce & Regulation: Accident Records

Rural Vs. Urban

Figures 3-3 and 3-4 show the distribution of all accidents, fatal accidents, and injury accidents by urban and rural locations. The majority of the reported accidents occurred in urban areas (towns and cities). However, most of the fatal accidents, 88.4%, happened in a rural location. (not within a city limit). There were 130 rural fatal accidents in which 158 persons were killed and 17 urban fatal accidents in which 17 persons were killed. The injury accidents were more evenly distributed between urban and rural locations, with 55% urban and 45% rural. Urban accidents accounted for 3,249 injuries with 3,015 injuries sustained in rural accidents.

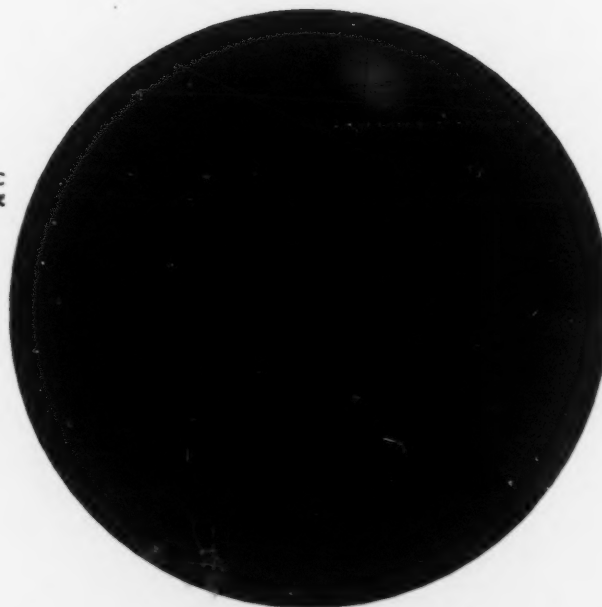
RURAL ACCIDENT
39.67%



URBAN ACCIDENT
60.33%

FIGURE 3-3 1983 TRAFFIC ACCIDENTS
RURAL LOCATION V. URBAN LOCATION

RURAL FATAL ACC
88.44%



URBAN FATAL ACC
11.56%

FIGURE 3-4 1983 FATAL TRAFFIC ACCIDENTS
RURAL LOCATION V. URBAN LOCATION

County Summary

Table 3-6 provides a summary of all reported accidents (rural and urban) by county in South Dakota.

Rural fatal and injury accidents occurred predominantly in 12 counties (see Table 3-7). Each of these counties reported at least 2% of all rural fatal and injury accidents. The twelve accounted for 54 percent of rural fatal and injury accidents and 25 percent of all fatal and injury accidents in South Dakota. Pennington County had 13% of all rural fatal and injury accidents with Minnehaha County reporting just over 8% of the total. Figure 3-5 indicates the location of these 12 counties in South Dakota.

City Summary

Reported traffic accidents within South Dakota's largest cities are presented in Table 3-8. These 24 cities reported 51.5% of all accidents, 6.8% of all fatal accidents, and 49% of all injury accidents. Sioux Falls, Rapid City, and Aberdeen had the most urban accidents during 1983. However, these cities also have the largest population and most travel. The top ten cities in reported accidents are portrayed in Figure 3-6.

Roadway Surface Conditions

The majority of the accidents occurred on dry roads, including fatal and injury accidents (see Table 3-9). Even through combining similar "bad" road conditions, ice, snow, frost and slush, this accounts for less than one-third (28.7%) of all reported accidents and 19.3% of all fatal and injury accidents. Over two-thirds (67.5%) of all fatal and injury accidents occurred on dry roads.

Contributing Circumstances (Vision Obscurement and Other)

Contributing circumstances at the accident level involve two categories: vision obscurement and other. The reporting officer may include one, two, or no contributing circumstances for each category. Vision obscurement refers to conditions such as: fog or smoke, blowing soil, dirt or sand, rain, snow, sleet or hail, windshield or window obscured, glare from sun or lights, trees or other vegetation, snowbank, and etc. Vision obscurement as a contributing circumstance was indicated in just under 25% of all accidents with two separate vision obscurements being reported in less than five percent of all accidents. Rain, snow, sleet or hail was the most frequently reported vision obscurement and was indicated as a problem in less than 10% of all accidents.

Contributing circumstances - other were reported in 37 percent of all accidents with two being reported in 4.4% of all accidents. These contributing circumstances include wind conditions, slippery surface, road shoulder conditions, objects or animals in the road, phantom vehicle, pedestrians, bicyclists, road construction conditions, rough roads, or faulty or missing traffic control devices. The most common condition reported was slippery surface and it was reported as a factor in just under 25% of all accidents.

TABLE 3-6
REPORTED TRAFFIC ACCIDENTS
SOUTH DAKOTA COUNTIES
1983

County	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Fatalities	Injuries
AURORA	57	1	15	41	1	20
BEADLE	448	1	108	339	1	145
BENNETT	29	5	12	12	5	21
BON HOMME	92	1	24	67	1	38
BROOKINGS	570	1	147	422	1	231
BROWN	960	3	252	705	4	381
BRULE	114	2	24	88	2	35
BUFFALO	6	1	1	4	1	2
BUTTE	167	3	44	120	4	80
CAMPBELL	22	0	2	20	0	3
CHARLES MIX	80	1	28	51	1	39
CLARK	63	1	13	49	1	24
CLAY	133	1	47	85	1	63
CODINGTON	401	2	127	272	2	187
CORSON	66	2	25	39	2	41
CUSTER	219	5	63	151	7	102
DAVISON	604	4	154	446	4	224
DAY	141	2	31	108	2	59
DEUEL	98	2	40	56	3	57
DEWEY	61	3	17	41	6	23
DOUGLAS	35	0	6	29	0	7
EDMUNDS	91	1	17	73	1	27
FALL RIVER	169	3	47	119	4	65
FAULK	44	1	9	34	1	12
GRANT	107	1	28	78	1	49
GREGORY	105	2	21	82	2	32
HAAKON	61	0	11	50	0	14
HAMLIN	72	1	14	57	1	18
HAND	97	0	15	82	0	23
HANSON	69	1	12	56	1	19
HARDING	39	1	12	26	1	14
HUGHES	348	1	80	267	1	116
HUTCHINSON	121	4	31	86	5	55
HYDE	46	0	13	33	0	13
JACKSON	70	3	18	49	3	37
JERAULD	77	0	12	65	0	21
JONES	59	0	14	45	0	17
KINGSBURY	139	1	33	105	1	45
LAKE	207	2	43	162	3	56
LAWRENCE	644	9	197	438	9	297
LINCOLN	259	3	89	167	4	144
LYMAN	100	5	19	76	5	25

TABLE 3-6 (Continued)

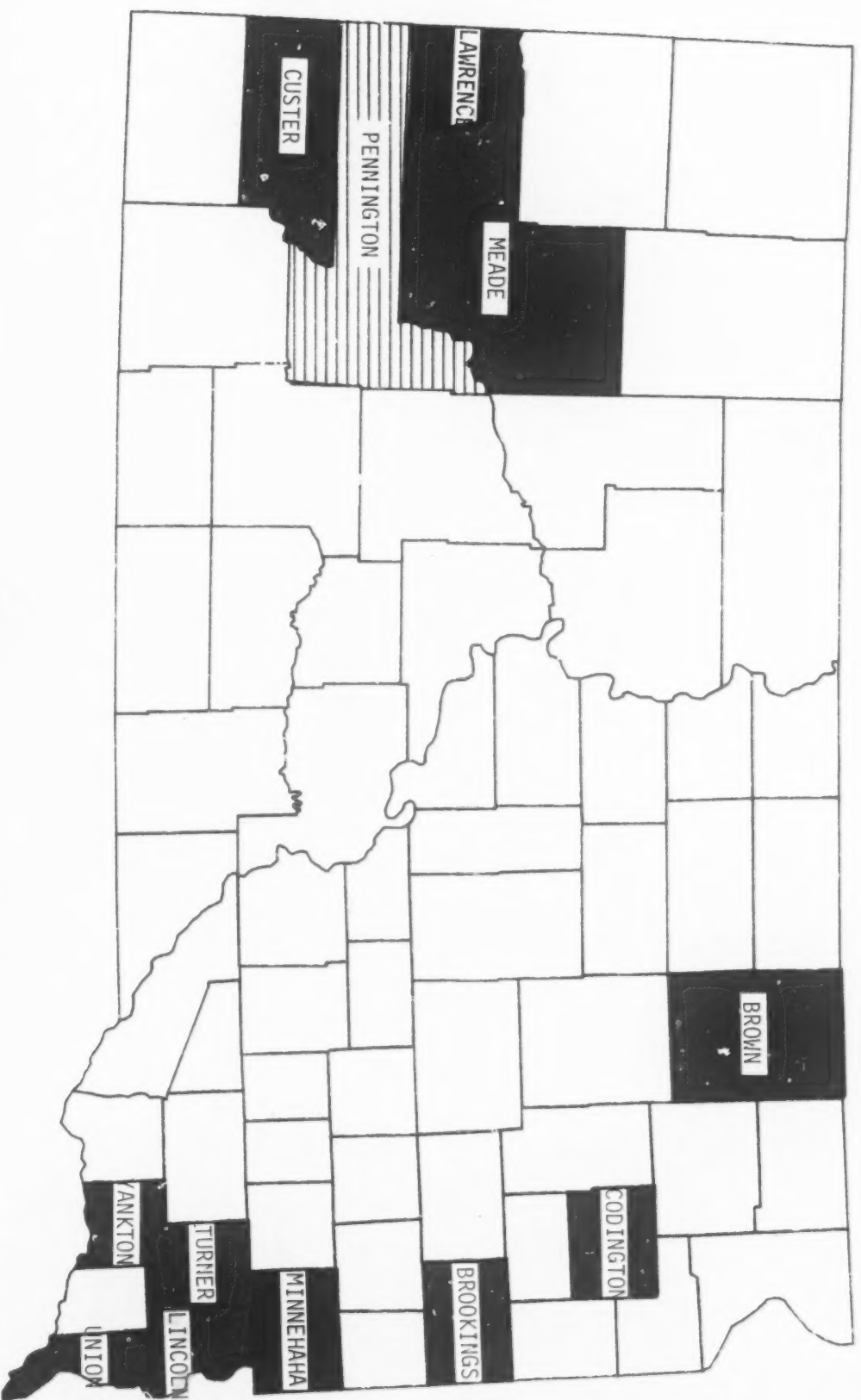
County	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Fatalities	Injuries
MC COOK	148	2	34	112	2	47
MC PHERSON	26	0	5	21	0	20
MARSHALL	84	1	18	65	3	30
MEADE	226	2	65	159	3	101
MELLETTE	27	2	9	16	2	16
MINER	54	0	18	36	0	22
MINNEHAHA	2,828	6	812	2,010	6	1,170
MOODY	154	2	39	113	2	49
PENNINGTON	2,350	17	803	1,530	19	1,223
PERKINS	53	2	15	36	2	17
POTTER	75	1	19	55	2	26
ROBERTS	144	3	31	110	3	57
SANBORN	57	0	16	41	0	22
SHANNON	4	4	0	0	11	14
SPINK	164	1	27	136	1	39
STANLEY	56	2	13	41	2	17
SULLY	49	1	10	38	1	12
TODD	74	2	20	52	2	44
TRIPP	134	1	21	112	1	33
TURNER	142	2	49	91	2	68
UNION	191	7	75	109	8	119
WALWORTH	83	2	16	65	3	31
YANKTON	455	3	128	324	3	190
ZIEBACH	19	4	4	11	5	16
Total	14,887	147	4,162	10,578	175	6,264

Source: Department of Commerce & Regulation: Accident Records

TABLE 3-7
COUNTIES HAVING MORE THAN TWO PERCENT OF THE
RURAL FATAL & INJURY ACCIDENTS
1983

County	Number of Rural Fatal & Injury Accd.	Percent of All Rural Fatal & Injury Accd.
BROOKINGS	60	3.0
BROWN	76	3.8
CODINGTON	41	2.0
CUSTER	48	2.4
LAWRENCE	146	7.3
LINCOLN	75	3.7
MEADE	49	2.4
MINNEHAHA	162	8.1
PENNINGTON	260	13.0
TURNER	42	2.1
UNION	67	3.3
YANKTON	53	2.6
Total	1,079	53.9

Source: Department of Commerce & Regulation: Accident Records



LEGEND, PERCENT



OVER 10 %



5 - 10 %



2 - 5 %



LESS 2 %

FIGURE 3-5 1983 RURAL FATAL & INJURY ACCIDENTS
PERCENTAGE INVOLVEMENT BY COUNTY

TABLE 3-8
TRAFFIC ACCIDENTS
SOUTH DAKOTA CITIES
POPULATION 2500 AND OVER
1983

City	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Fatalities	Injuries
Aberdeen	714	1	171	542	1	241
Belle Fourche	95	0	14	81	0	19
Box Elder	39	0	11	28	0	17
Brandon City	22	0	5	17	0	11
Brockings	345	0	78	267	0	103
Canton	46	0	10	36	0	14
Hot Springs	79	0	15	64	0	17
Huron	310	1	69	240	1	88
Lead	95	0	21	74	0	23
Madison	103	0	17	86	0	21
Milbank	26	0	4	22	0	4
Mitchell	492	1	120	371	1	173
Mobridge	27	1	6	20	1	9
Pierre	283	0	66	217	0	96
Rapid City	1,657	3	540	1,114	3	812
Redfield	24	0	6	18	0	7
Sioux Falls	2,324	2	642	1,680	2	919
Sisseton	31	0	3	28	0	3
Spearfish	111	1	19	91	1	24
Sturgis	91	0	18	73	0	24
Vermillion	93	0	32	61	0	41
Watertown	272	0	86	186	0	123
Winner	65	0	9	56	0	13
Yankton	326	0	78	248	0	106

Source: Department of Commerce & Regulation: Accident Records

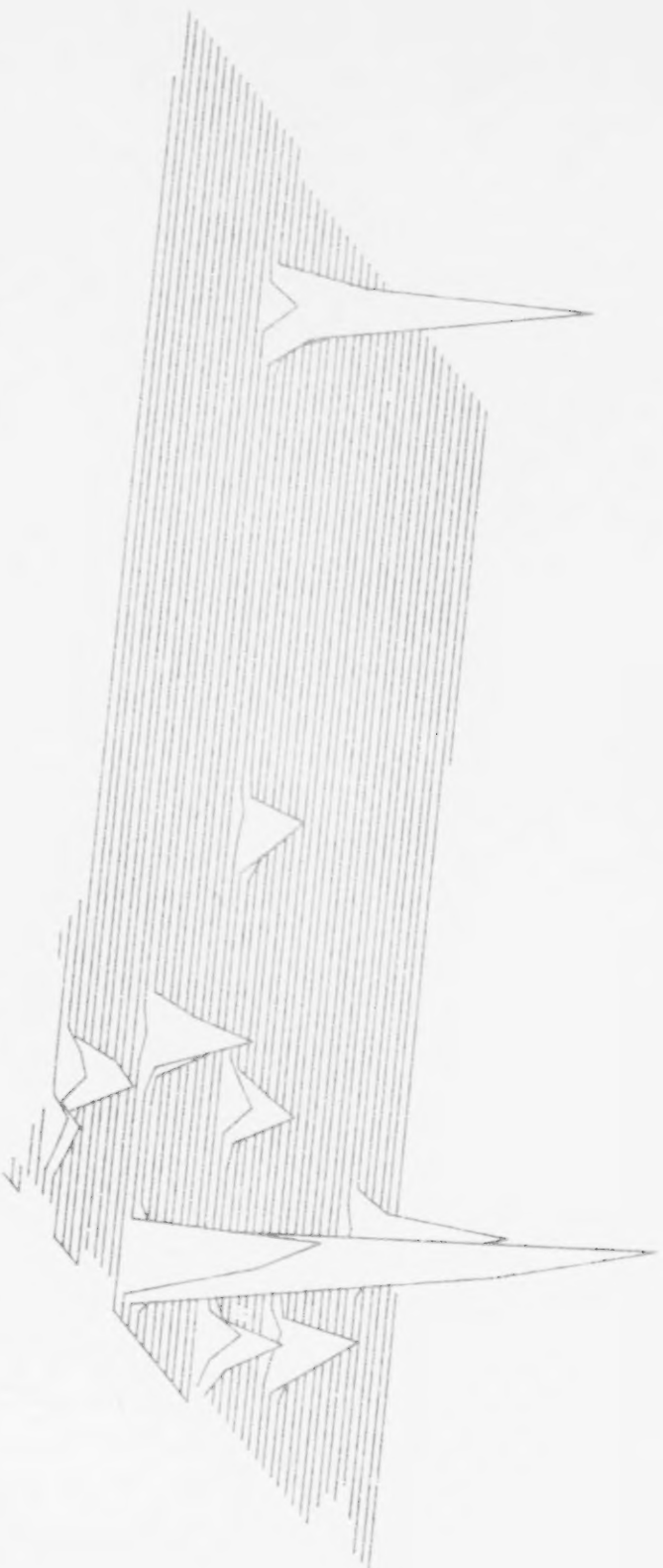


FIGURE 3-6 1983 URBAN FATAL & INJURY ACCIDENTS
TEN LARGEST CITIES

TABLE 3-9
ROADWAY SURFACE CONDITIONS
1983

	Total Accd. No.	%	Fatal Accd. No.	%	Injury Accd. No.	%	PDO Accd. No.	%
Dry	8,752	58.8	114	77.5	2,796	67.2	5,842	55.2
Wet	1,687	11.3	17	11.6	508	12.2	1,162	11.0
Ice	2,636	17.7	3	2.0	482	11.6	2,151	20.3
Frost	137	0.9	0	0.0	51	1.2	86	0.8
Slush	264	1.8	2	1.4	69	1.7	193	1.8
Snow	1,231	8.3	8	5.4	218	5.2	1,005	9.5
Mud	49	0.3	0	0.0	9	0.2	40	0.4
Other	62	0.4	1	0.7	20	0.5	41	0.4
Unknown	69	0.5	2	1.4	9	0.2	58	0.6
Total	14,887	100.0	147	100.0	4,162	100.0	10,578	100.0

Source: Department of Commerce & Regulation:Accident Records

Accidents by Time of Day, Month, and Day of Week

The late afternoon, 3:00-6:00 P.M., was the peak three-hour period for accidents to occur. 22.2% of all accidents and 14.3% of the fatal accidents occurred during this time period. The one-hour period, 11:00-Midnight, had the most fatal accidents, 11, but the most fatalities occurred between 7:00-8:00 P.M., 16 (see Table B-3 In Appendix).

The spring and summer months had the most fatal and injury accidents during 1983, while the winter months had more PDO accidents. There were 84 (57.1%) of the fatal accidents and 96 (54.9%) of the fatalities from May through September. There is more vacation and other recreational travel during the summer which probably produces more drinking and speeding drivers. Over 36% of the PDO accidents occurred in November, December, and January. The road conditions in the winter months contribute to the increase in PDO accidents (see Table B-4 In Appendix).

Saturday had the most accidents (2,485), most fatal accidents (29), and the most injury accidents (720) (see Table B-5 In Appendix). Figures 3-7 through 3-9 illustrate the trends of time of day, month and day of week.

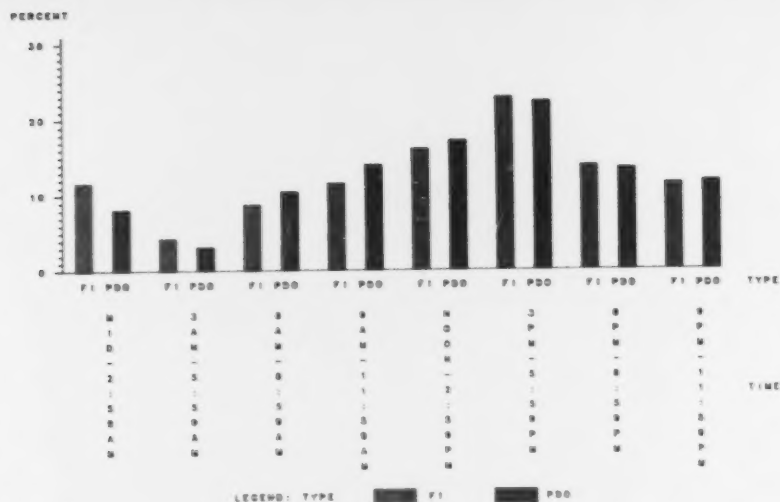


FIGURE 3-7 1983 FATAL & INJURY/PROPERTY DAMAGE ONLY ACCIDENTS BY TIME OF DAY

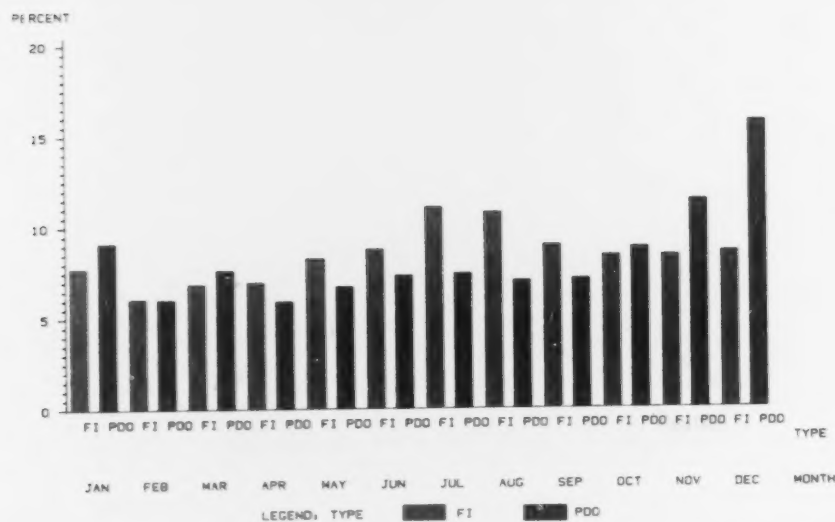


FIGURE 3-8 1983 FATAL & INJURY/PROPERTY DAMAGE ONLY ACCIDENTS BY MONTH

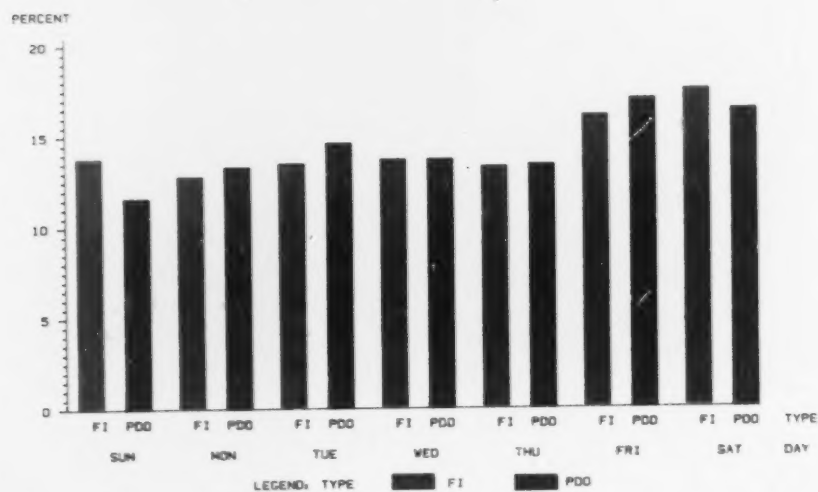


FIGURE 3-9 1983 FATAL & INJURY/PROPERTY DAMAGE ONLY ACCIDENTS BY DAY OF WEEK

Drivers

There were 23,314 motor vehicle drivers in the 14,887 reported motor vehicle accidents, 210 drivers in fatal accidents and 6,458 drivers in injury accidents. Ninety-four drivers were killed, which is 53.7% of all persons killed in motor vehicle accidents while 61.8% or 3,869 of the 6,264 injured were drivers.

Young drivers are involved in more accidents than any other age group (see Table 3-10). Forty-one percent of the drivers in reported accidents are under 25 years of age and 64% are under 35. Age of drivers involved in fatal and injury accidents follow the pattern of drivers in all accidents. Those drivers under 25 represent 34.3% of the drivers involved in fatal accidents and 41.9% of the drivers in injury accidents while drivers under 35 make up 55.7% of the drivers in fatal accidents and 65.1% of the drivers in injury accidents.

TABLE 3-10
AGE OF DRIVERS IN ACCIDENTS
1983

Age	Drivers In All Accidents		Drivers In Fatal Accidents		Drivers in Injury Accidents		Drivers In PDO Accidents	
	No.	%	No.	%	No.	%	No.	%
6-13	34	0.2	1	0.5	17	0.3	16	0.1
14-15	579	2.5	3	1.4	174	2.7	402	2.4
16-18	3,064	13.1	20	9.5	828	12.8	2,216	13.3
19-20	2,259	9.7	15	7.2	646	10.0	1,598	9.6
21-24	3,616	15.5	33	15.7	1,041	16.1	2,542	15.3
25-34	5,387	23.1	45	21.4	1,495	23.2	3,847	23.1
35-44	2,808	12.0	29	13.8	834	12.9	1,945	11.7
45-54	1,851	7.9	20	9.5	477	7.4	1,354	8.1
55-64	1,677	7.2	22	10.5	432	6.7	1,223	7.3
65 & Over	1,808	7.8	21	10.0	493	7.6	1,294	7.8
Unknown	231	1.0	1	0.5	21	0.3	209	1.3
Total	23,314	100.0	210	100.0	6,458	100.0	16,646	100.0

Source: Department of Commerce & Regulation: Accident Records

Drinking drivers are of major concern because of the number of alcohol involved serious accidents. Table 3-11 provides information on the age of drinking drivers in motor vehicle accidents. There were a reported 2,083 drinking drivers in all accidents which is about 9% of all drivers in accidents. Sixty-nine or 32.9% of drivers in fatal accidents had been drinking while 14.9% of the drivers involved in injury accidents had been drinking. Young drivers are predominantly the drinking drivers in accidents. Those drivers under 25 years of age accounted for 55.8% of the drinking drivers in all accidents while those under 35 years of age were 81.2% of the drinking drivers in all accidents. Drinking drivers in fatal accidents were more evenly distributed by age but the young driver is still predominant with 40.6% under 25 and 65.2% under 35. However, those drivers between 35 and 54 accounted for 29% of the drinking drivers in fatal accidents while they were only 14.4% of the drinking drivers in all accidents. The age of drinking drivers in injury accidents follows closely the distribution in all accidents.

TABLE 3-11
AGE OF DRINKING DRIVERS IN ACCIDENTS
1983

Age	Drivers In All Accidents		Drivers In Fatal Accidents		Drivers In Injury Accidents		Drivers In PDO Accidents	
	No.	%	No.	%	No.	%	No.	%
6-13	1	0.1	0	0.0	1	0.1	0	0.0
14-15	20	1.0	0	0.0	11	1.1	9	0.9
16-18	289	13.9	8	11.6	129	13.4	152	14.5
19-20	333	16.0	6	8.7	152	15.8	175	16.7
21-24	517	24.8	14	20.3	239	24.8	264	25.2
25-34	529	25.4	17	24.6	246	25.5	266	25.3
35-44	190	9.1	12	17.4	95	9.8	83	7.9
45-54	111	5.3	8	11.6	50	5.2	53	5.0
55-64	57	2.7	3	4.3	25	2.6	29	2.8
65 & Over	29	1.4	0	0.0	14	1.4	15	1.4
Unknown	7	0.3	1	1.4	3	0.3	3	0.3
Total	2,083	100.0	69	100.0	965	100.0	1,049	100.0

Source: Department of Commerce & Regulation: Accident Records

Table 3-12 compares age of drivers in fatal and injury accidents, drinking drivers in fatal and injury accidents, and speeding drivers in fatal and injury accidents with licensed drivers by age. Again the young driver is overrepresented as those drivers in fatal and injury accidents, drinking drivers in fatal and injury accidents, and speeding drivers in fatal and injury accidents. Twenty-three percent of the licensed drivers in South Dakota were under 25 but 54.5% of the drinking drivers in fatal and injury accidents and 56.9% of the speeding drivers in fatal and injury accidents were under 25 years of age. Eighty percent of the drinking drivers in fatal and injury accidents and 79.5% of the speeding drivers in fatal and injury accidents were under 35 years of age while constituting 45.8% of all licensed drivers (also see Figure 3-10).

TABLE 3-12
LICENSED DRIVERS BY AGE AND FATAL AND INJURY ACCIDENTS
1983

Age	Licensed Drivers	Drivers In Fatal & Injury Accidents		Drinking Drivers In Fatal & Injury Accidents		Speeding Drivers In Fatal & Injury Accidents	
	%	No.	%	No.	%	No.	%
0-13	0.0	18	0.3	1	0.1	6	0.5
14-15	1.6	177	2.7	11	1.1	46	3.6
16-17	3.6	523	7.9	57	5.5	150	11.9
18	2.2	325	4.9	80	7.8	91	7.2
19	2.4	338	5.1	82	8.0	89	7.0
20	2.5	323	4.8	76	7.4	98	7.7
21-24	10.7	1,074	16.1	253	24.6	240	19.0
25-34	22.8	1,540	23.2	263	25.5	285	22.6
35-44	14.9	863	13.0	107	10.4	121	9.6
45-54	11.9	497	7.5	58	5.6	57	4.5
55-64	12.3	454	6.8	28	2.7	49	3.9
65 & Over	15.1	514	7.7	14	1.3	31	2.5
Total	100.0	6,646	100.0	1,030	100.0	1,263	100.0

Note: Excludes drivers with an unknown age.
Legal drinking age for 3.2 beer was 18 during 1983.

Source: Department of Commerce & Regulation: Accident Records

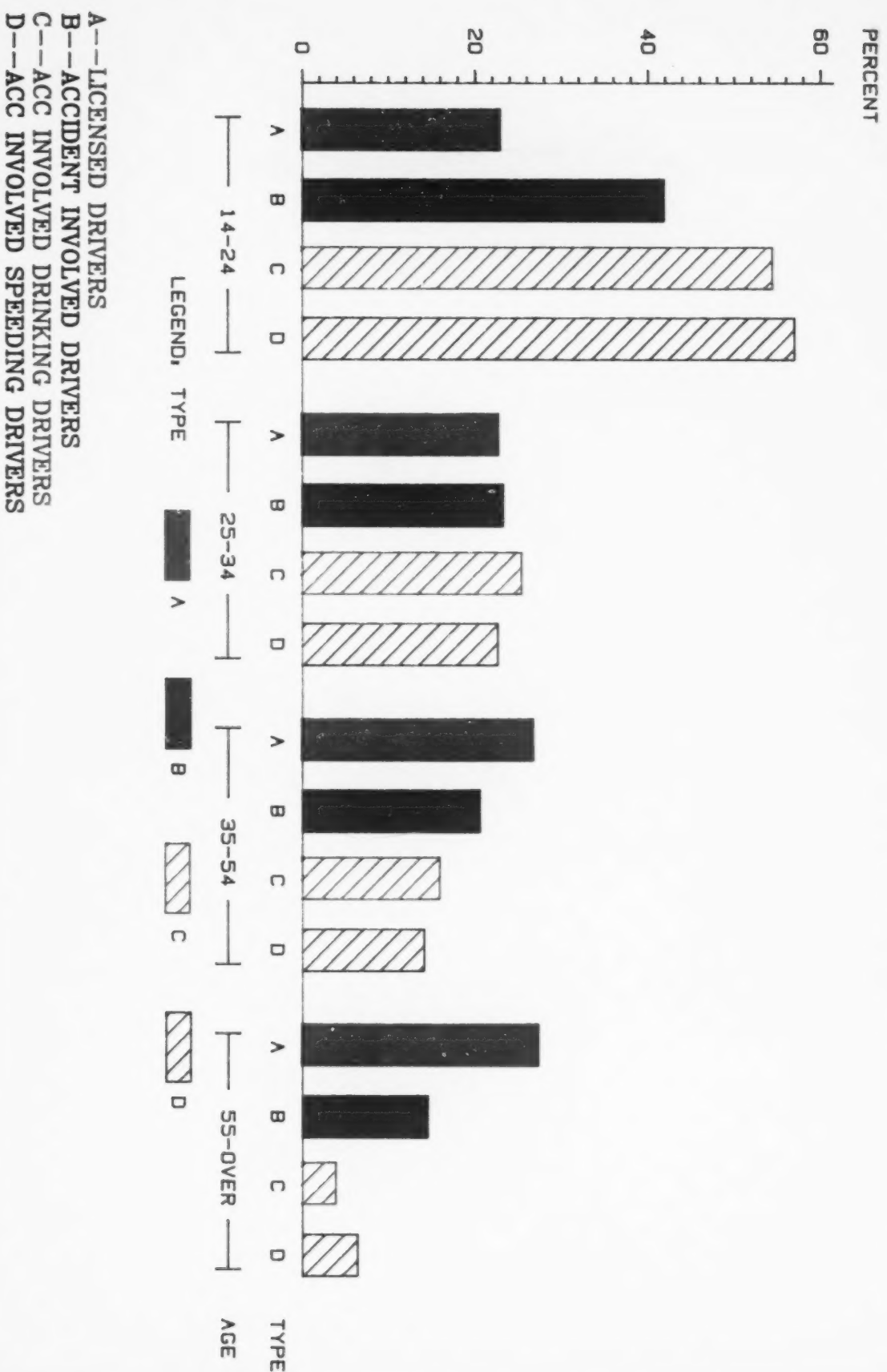


FIGURE 3-10 DRIVERS BY AGE GROUP 1983

Driver actions are reported to indicate possible factors that may have contributed to the accidents. These factors are referred to as driver contributing circumstances. Drinking was the leading driver contributing circumstance in fatal accidents during 1983. It was indicated that the drinking of 69 or 32.9% of the drivers in fatal accidents contributed to the accident. Exceeding the speed limit was the second leading driver contributing circumstance in fatal accidents. Drinking was also the leading driver contributing circumstance in injury accidents. Driving on the wrong side of the road, exceeding a safe speed but not the legal limit, and failing to yield to another vehicle were other leading driver contributing circumstances in fatal and injury accidents (see Table 3-13).

TABLE 3-13
MOTOR VEHICLE DRIVER CONTRIBUTING CIRCUMSTANCES
1983

	Total Accd.		Fatal Accd.		Injury Accd.		PDO Accd.	
	No.	%	No.	%	No.	%	No.	%
No Contributing Circumstance	11,102	47.6	72	34.3	2,732	42.3	8,298	49.8
Drinking	2,083	8.9	69	32.9	965	14.9	1,049	6.3
Exceeded Speed Limit	1,189	5.1	36	17.1	503	7.8	650	3.9
Wrong Side of Road	682	2.9	25	11.9	256	4.0	401	2.4
Exceeded Safe Speed But Not Limit	2,462	10.6	21	10.0	704	10.9	1,737	10.4
Failed to Yield to Vehicle	3,195	13.7	17	8.1	876	13.6	2,302	13.8
Failed to Stop for Stop Sign/Flashing Red	418	1.8	10	4.8	153	2.4	255	1.5
Fell Asleep	411	1.8	8	3.8	207	3.2	196	1.2
Improper Passing	325	1.4	8	3.8	96	1.5	221	1.3
Distracted by Obj/ Person In Car	487	2.1	5	2.4	195	3.0	287	1.7
Improper Turn	723	3.1	3	1.4	186	2.9	534	3.2
Following Too Closely	883	3.8	3	1.4	324	5.0	556	3.3
Improper Backing	504	2.2	2	1.0	35	0.5	467	2.8
Other*	2,592	11.1	26	12.4	745	11.5	1,821	10.9
Unknown	626	2.7	9	4.3	134	2.1	483	2.9
Total Drivers	23,314		210		6,458		16,646	

Note: The Investigating officer may assign from zero to three contributing circumstances to each driver; therefore, the number of drivers in motor vehicle accidents does not equal the number of contributing circumstances. Also, Highway Safety changed the number of drivers having drinking as a contributing circumstance to equal the number of reported drinking drivers in accidents. Officers indicated drinking as a contributing circumstance to 1,472 drivers in all accidents, 41 drivers in fatal accidents, 736 drivers in injury accidents, and 695 drivers in PDO accidents.

*Other includes driving under posted minimum, failed to yield to pedestrian, disregarded stop and go signal, disregarded other traffic control devices, improper signal or failure to signal, turning from wrong lane, improper lane change, improper start from parked position, improper parking, failure to comply with license restrictions, drugs, illness, physical impairment, and illegally in roadway.

Source: Department of Commerce & Regulation: Accident Records

Motorcycles

Motorcycle accidents constitute approximately 4% of all accidents, 8% of all fatal accidents, and 12% of all injury accidents. There were 12 people killed and 590 injured on motorcycles in the 572 reported motorcycle accidents during 1983. Motorcycle registration and licensed motorcyclists have increased annually while the number of motorcycle accidents have shown a decline in the last few years even though there were a few more in 1983 than in 1982 (see Table B-8 in Appendix). The young motorcycle driver is overrepresented in accidents when compared to their portion of licensed motorcycle operators. Approximately 29% of all accident-involved riders are less than 20 years of age and over 75 percent are under 30 (see Table 3-14 and Figure 3-11).

TABLE 3-14
MOTORCYCLISTS BY AGE GROUP
1983

Age Group	Licensed Motorcyclists		Accident Involved Motorcyclists		Accident Involved Drinking Motorcyclists		Accident Involved Speeding Motorcyclists	
	%	No.	%	No.	%	No.	%	No.
0-13	0.0	0	1.5	9	0.0	0	1.5	2
14-15	1.9	882	6.1	36	0.7	1	5.2	7
16-17	4.4	2,002	7.5	44	0.7	1	8.1	11
18-19	6.5	2,958	13.5	80	9.7	13	21.5	29
20-21	8.3	3,760	14.0	83	13.5	18	14.8	20
22-23	9.3	4,227	11.3	67	16.4	22	8.1	11
24-25	8.1	3,701	10.2	60	19.4	26	12.6	17
26-27	9.0	4,113	6.4	38	9.7	13	5.2	7
28-29	7.7	3,508	5.3	31	7.5	10	3.7	5
30-31	7.2	3,281	4.1	24	7.5	10	2.2	3
32-36	13.2	6,006	10.3	61	10.5	14	8.9	12
37-41	7.7	3,486	3.9	23	3.7	5	3.7	5
42-51	9.3	4,239	3.7	22	0.0	0	3.0	4
52 & Over	7.4	3,381	2.2	13	0.7	1	1.5	2
Total	100.0	45,544	100.0	591	100.0	134	100.0	135

Source: Department of Commerce & Regulation: Accident Records
Department of Commerce & Regulation: Driver License Issuance

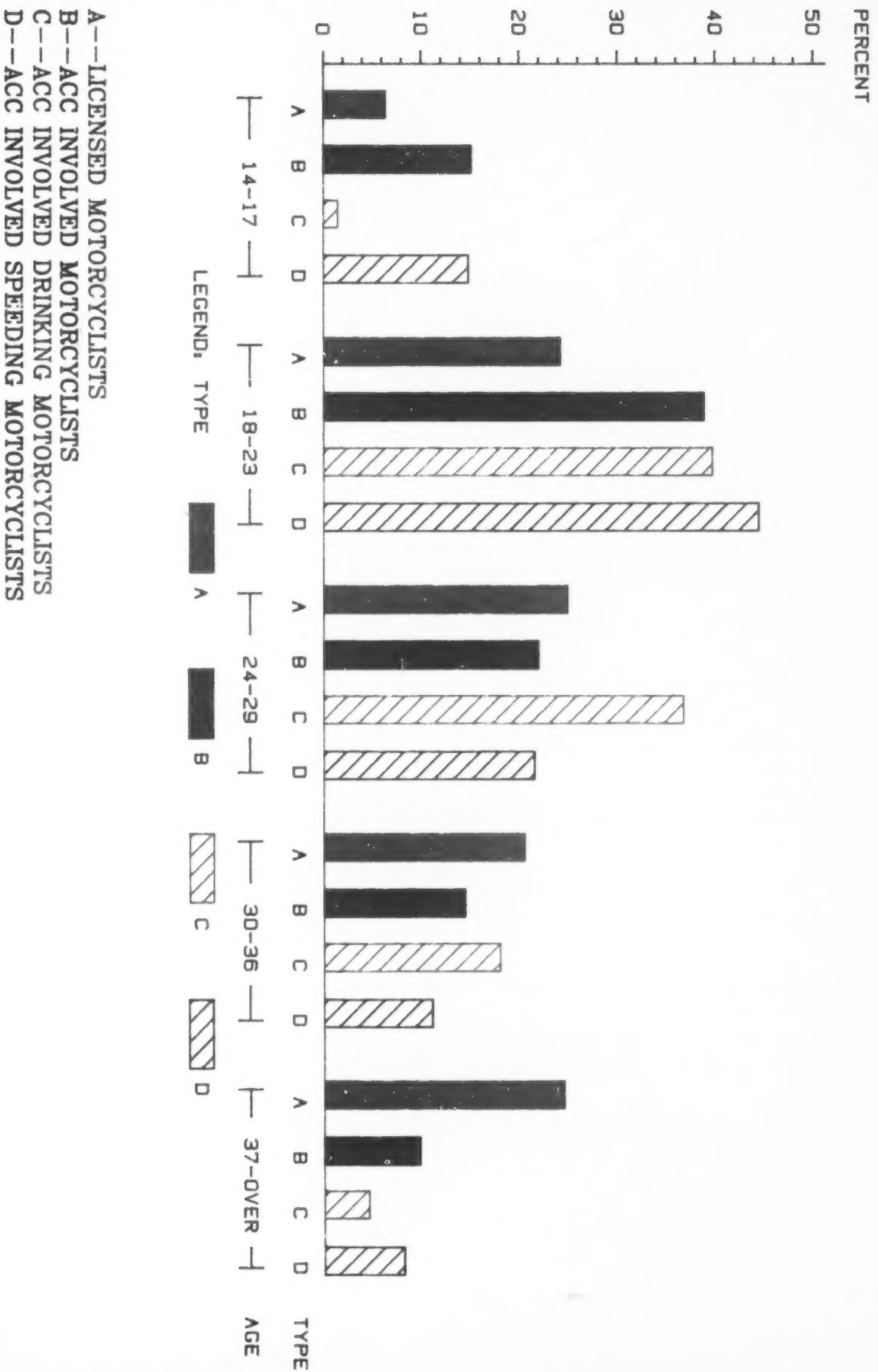


FIGURE 3-11 MOTORCYCLISTS BY AGE GROUP 1983

Pedestrians

There were 20 pedestrians killed and 139 injured in motor vehicle accidents during 1983 (see Table 3-15). The youngest pedestrian killed was 6 years old while the oldest was 79. There does not appear to be any particular age group that is overrepresented in pedestrian fatalities, however, 45% of the fatalities were over 45 years old. Most of the injured pedestrians were younger persons, 59% were under 25 years old. Since 1970 there has been an average of 19 pedestrians killed in accidents each year (see Table B-9 in appendix). Illegally in roadway, clothing not visible, and drinking were the three most common contributing circumstances in pedestrian fatalities. There were no contributing circumstances in 78 or 56% of the pedestrian injuries. Officers reported that 65% or 13 of the pedestrians killed had been drinking alcohol (see Table 3-16). The average BAC of those pedestrians who had been drinking was .22 percent. Nineteen of the 20 pedestrian fatalities occurred in rural areas while the majority of the pedestrian injuries happened in urban areas, 86.3% (see Table 3-17).

TABLE 3-15
AGE OF PEDESTRIANS IN
TRAFFIC ACCIDENTS
1983

Age	Fatalities		Injuries	
	No.	%	No.	%
0-5	0	0.0	14	10.1
6-13	1	5.0	29	20.9
14-19	4	20.0	25	18.0
20-24	3	15.0	14	10.1
25-34	1	5.0	12	8.6
35-44	1	5.0	12	8.6
45-54	3	15.0	9	6.5
55-64	3	15.0	9	6.5
65 & Over	3	15.0	13	9.3
Unknown	1	5.0	2	1.4
Total	20	100.0	139	100.0

Source: Department of Commerce & Regulation: Accident Records

TABLE 3-16
ALCOHOL INVOLVEMENT BY PEDESTRIANS
1983

Alcohol Involvement	Fatalities		Injuries	
	No.	%	No.	%
Alcohol or Drugs	13	65.0	22	15.8
No Alcohol	4	20.0	112	80.6
Unknown	3	15.0	5	3.6
Total	20	100.0	139	100.0

Source: Department of Commerce & Regulation:Accident Records

TABLE 3-17
RURAL VS. URBAN PEDESTRIAN ACCIDENTS
1983

	<u>Killed</u>	<u>Injured</u>
Rural	19	19
Urban	1	120
Total	20	139

Source: Department of Commerce & Regulation:Accident Records

Bicycles

There was one bicycle driver killed, 96 injured and one not injured in reported motor vehicle accidents during 1983 (see Table 3-18). There were also four bicycle passengers injured during 1983. The leading factor in bicycle involved crashes was the bicycle driver failing to yield to a motor vehicle. Other bicyclist contributing circumstances were improper turning, being on the wrong side of the road, illegally in the roadway, failing to stop for stop sign or flashing red light and improper signal or not signaling. Thirty-two of the bicycle drivers in accidents had no contributing circumstances. The yearly, 1970-1983, trend of bicycle fatalities and injuries is provided in Table B-10 in the Appendix.

TABLE 3-18
AGE OF BICYCLE DRIVERS
IN TRAFFIC ACCIDENTS
1983

Age	Fatalities Number	Injuries Number	%
0-5	0	4	4.2
6-13	0	53	55.2
14-19	1	14	14.6
20-24	0	12	12.5
25-34	0	8	8.4
35-44	0	3	3.1
45-54	0	0	0.0
55-64	0	1	1.0
65 And Over	0	0	0.0
Unknown	0	1	1.0
Total	1	96	100.0

Source: Department of Commerce & Regulation: Accident Records

Use of Safety Equipment

The use of safety equipment is reported on all motor vehicle drivers in an accident and only on those passengers that are injured. During 1983 only 6.5% of the motor vehicle drivers in accidents were using safety restraints (see Table 3-19). Sixty-seven drivers of motor vehicles were killed while not using any safety restraint while 3 drivers were killed while using some type of safety restraint (does not include drivers of motorcycles, mopeds and snowmobiles). Over 93 percent (2,892) of the injured drivers were not using safety restraints.

TABLE 3-19
SAFETY RESTRAINT USE BY MOTOR VEHICLE DRIVERS IN ALL ACCIDENTS
1983

<u>Age of Driver</u>	<u>Safety Restraint Used</u>		<u>No Safety Restraint Used</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
14-15	16	3.2	479	96.8
16-17	35	2.0	1,694	98.0
18-20	128	4.3	2,839	95.7
21-24	202	6.4	2,961	93.6
25-34	401	8.5	4,300	91.5
35-44	205	8.3	2,276	91.7
45-54	145	8.7	1,516	91.3
55-64	103	6.9	1,383	93.1
65 & Over	94	5.8	1,520	94.2
Not Stated Or Unknown	1	1.5	64	98.5
	<u>1,330</u>	<u>6.5</u>	<u>19,032</u>	<u>93.5</u>

Note: Includes all drivers of motor vehicles except drivers of mopeds, motorcycles and snowmobiles. Also excludes those drivers under 13 years of age. Percentages are row percents.

Source: Department of Commerce & Regulation: Accident Records

There were 5 young children (0 through 4 years of age) killed in motor vehicle accidents during 1983 and they were not protected by any safety equipment. There were no young children killed in accidents while using safety equipment (either safety belts or child restraint devices).

Helmets were used by 180 or 32.1% of the motorcycle drivers in accidents while 381 or 67.9% did not wear a helmet (see Table 3-20). Eleven motorcycle drivers were killed during 1983 of which 9 were not wearing helmets and 2 were wearing helmets.

TABLE 3-20
HELMET USE BY MOTORCYCLE DRIVERS IN ACCIDENTS
1983

Age	Helmet Used		Helmet Not Used	
	No.	%	No.	%
6-13	3	37.5	5	62.5
14-15	25	73.5	9	26.5
16-17	25	59.5	17	40.5
18-20	36	32.4	75	67.6
21-24	26	19.0	111	81.0
25-34	40	26.0	114	74.0
35-44	17	32.1	36	67.9
45 & Over	8	38.1	13	61.9
Unknown & Not Stated	0	0.0	1	100.0
Total	180	32.1	381	67.9

Note: Percentages are row percents.

Source: Department of Commerce & Regulation: Accident Records

IV. Glossary of Terms

Reportable Traffic Accident: motor vehicle traffic accident which involves death, injury or accumulated property damage of \$400.00 or over.

Fatal Accident: motor vehicle traffic accident in which at least one person was killed.

Injury Accident: motor vehicle accident in which at least one person was injured and no one was killed.

Property Damage Only (PDO) Accident: motor vehicle accident in which no one was killed or injured but there was at least \$400.00 in property damage.

Fatality Rate: number of traffic fatalities per 100 million vehicle miles traveled.

Alcohol Involved Accident (1983): at least one driver, pedestrian, or bicycle driver had been drinking in the opinion of the investigating officer.

APPENDIX A

V. Alcohol Evaluation

The following provides further information on the impact evaluation conducted on the DWI Countermeasures. The evaluation was previously published in South Dakota's 1983 Administrative Evaluation of the Highway Safety Plan. The data in the tables were used to conduct the time series analysis.

The initial step in the analysis was to estimate the change in the level of fatal and injury crashes experienced after the project implementation of 10/1/81, and to determine if the economy as reflected by the vehicle miles traveled (VMT) was responsible for the change. The results of this portion of the analysis indicates that:

- (1) The reduction in fatal and injury crashes is statistically significant at the $p = 0.10$ level. Furthermore, this reduction is estimated at about 24 fatal and injury accidents per month. This amounts to 576 accidents over the 24 month period since 10/1/81. Using an average of 1.5 injuries per accident we can estimate that 864 injuries were prevented because of the reduction of fatal and injury accidents.
- (2) Assuming that the VMT time series reflects the effects of the economy, the estimated reduction in fatal and injury crashes since 10/1/81 is due to other causes. The evaluation strategy used in this analysis postulates that the reduction is due to the increased alcohol countermeasure efforts.

The second phase of the analysis was to estimate the change in the level of alcohol related fatal and injury crashes experienced after the project implementation of 10/1/81, and to relate DWI arrest levels to that change. The results of this portion of the analysis indicate that:

- (1) The change in level of alcohol related fatal and injury crashes is statistically significant at the $p = 0.01$ level. The estimated reduction in alcohol related fatal and injury crashes is about 27 per month. This translated into the prevention of 648 accidents or 972 injuries (based on an average of 1.5 injuries per accident) since 10/1/81. Note that this more than accounts for the reduction in total fatal and injury crashes.
- (2) The alcohol related fatal and injury accidents are correlated to DWI arrest levels. This correlation is negative, which indicates that as arrests increase, the number of crashes tend to decrease; furthermore, it takes about 6 months for this impact to take effect.

The final phase of the analysis was to use fatal crash counts and alcohol related fatal crash counts to estimate the effects of the project on lives saved. The results of this portion of the analysis indicate that:

- (1) The change in level for all fatal accidents is about 5 accidents per month. This translates into 120 fatal accidents during the 24 month period after 10/1/81. Using an average of 1.15 persons killed per fatal accident we arrive at 138 lives saved in all fatal accidents. This decrease is statistically significant at the $p = 0.05$ level.
- (2) The change in level for alcohol related fatal accidents is about 3.7 per month or 89 alcohol related fatal accidents over the 24 month period following the beginning of the project. Again, using an average of 1.15 persons killed per fatal accident we arrive at 102 lives saved due to the reduction in alcohol related fatal accident experience. This decrease is statistically significant at the $p = 0.05$ level.

In summary, through using time series analysis it was determined that the increased efforts to remove the drinking driver were responsible for the decline in traffic crashes and not the economy. The relationship between DWI arrests and alcohol related fatal and injury accidents was significant at the $p = 0.01$ level while the relationship between DWI arrests and alcohol related fatal accidents was significant at the $p = 0.05$ level. In actual numbers, there have been 27 fewer alcohol related fatal and injury accidents per month since October, 1981. In looking at just fatal accidents, there have been 3.7 fewer alcohol related fatal accidents per month since October, 1981. The reduction of these accidents translates into saving about 102 lives and preventing 972 non-fatal injuries since October, 1981.

TABLE A-1
FATAL MOTOR VEHICLE TRAFFIC ACCIDENTS

	1979	1980	1981	1982	Preliminary 1983
JANUARY		10	7	5	7
FEBRUARY		9	13	9	8
MARCH		11	16	6	11
APRIL		15	13	7	8
MAY		21	13	15	17
JUNE		24	15	11	13
JULY	20	11	12	12	18
AUGUST	16	21	19	23	15
SEPTEMBER	26	27	16	14	17
OCTOBER	14	9	15	10	
NOVEMBER	17	14	13	7	
DECEMBER	22	16	10	10	
TOTAL	115	188	162	129	114

Source: Department of Commerce & Regulation:Accident Records

TABLE A-2
ALCOHOL INVOLVED FATAL MOTOR VEHICLE TRAFFIC ACCIDENTS*

	1979	1980	1981	1982	Preliminary 1983
JANUARY		7	7	3	3
FEBRUARY		5	11	3	3
MARCH		7	10	2	6
APRIL		7	6	3	5
MAY		12	10	11	7
JUNE		15	9	6	7
JULY	9	5	7	9	9
AUGUST	12	13	12	14	9
SEPTEMBER	11	16	9	9	5
OCTOBER	6	6	7	7	
NOVEMBER	12	4	9	4	
DECEMBER	14	8	3	6	
TOTAL	64	105	100	77	54

*An accident is determined to be alcohol involved if at least one driver, pedestrian or bicyclist had been drinking in the opinion of the investigating officer and/or had a positive BAC.

Source: Department of Commerce & Regulation:Accident Records

TABLE A-3
FATAL AND INJURY MOTOR VEHICLE TRAFFIC ACCIDENTS

	1979	1980	1981	1982	Preliminary 1983
JANUARY		320	311	328	333
FEBRUARY		336	298	252	260
MARCH		338	326	271	291
APRIL		335	368	301	297
MAY		428	450	401	354
JUNE		484	453	381	375
JULY	492	482	541	432	471
AUGUST	560	547	502	477	458
SEPTEMBER	417	431	375	404	376
OCTOBER	460	451	413	370	
NOVEMBER	399	382	364	351	
DECEMBER	413	424	375	353	
TOTAL	2,741	4,958	4,776	4,321	3,215

Source: Department of Commerce & Regulation:Accident Records

TABLE A-4
ALCOHOL RELATED FATAL AND INJURY MOTOR VEHICLE TRAFFIC ACCIDENTS*

	1979	1980	1981	1982	Preliminary 1983
JANUARY		88	103	45	61
FEBRUARY		76	104	57	68
MARCH		87	107	60	59
APRIL		91	125	77	64
MAY		136	150	132	107
JUNE		130	122	94	79
JULY	109	127	129	110	119
AUGUST	143	164	137	94	103
SEPTEMBER	105	125	96	91	102
OCTOBER	119	120	113	93	
NOVEMBER	123	125	99	71	
DECEMBER	128	122	81	83	
TOTAL	727	1,391	1,366	1,007	762

*An accident is determined to be alcohol involved if at least one driver, pedestrian or bicyclist had been drinking in the opinion of the investigating officer and/or had a positive BAC.

Source: Department of Commerce & Regulation:Accident Records

TABLE A-5
VEHICLE MILES TRAVELED
(In Thousands)

	1979	1980	1981	1982	1983
JANUARY		363,679	382,561	318,148	381,204
FEBRUARY		363,604	368,695	368,853	391,169
MARCH		391,121	411,288	378,081	401,955
APRIL		418,092	431,993	421,771	440,370
MAY		475,740	481,446	481,585	505,315
JUNE		518,065	545,452	552,762	591,216
JULY	552,459	549,626	578,923	579,360	618,770
AUGUST	581,348	573,345	582,560	585,662	615,899
SEPTEMBER	512,777	486,626	506,045	508,743	542,557
OCTOBER	490,017	475,389	472,873	478,494	
NOVEMBER	419,457	428,789	411,785	422,960	
DECEMBER	433,390	412,057	408,504	431,743	
TOTAL	2,989,448	5,456,133	5,582,125	5,528,162	4,488,455

Source: Department of Transportation: Inventory & Statistics

TABLE A-6
DWI ARREST ACTIVITY*

	1979	1980	1981	1982	1983
JANUARY		343	340	442	794
FEBRUARY		310	381	455	848
MARCH		372	434	446	793
APRIL		384	375	623	849
MAY		355	403	545	892
JUNE		356	426	500	673
JULY	324	305	453	582	975
AUGUST	344	365	473	554	843
SEPTEMBER	348	310	477	700	874
OCTOBER	326	327	510	710	
NOVEMBER	370	389	396	535	
DECEMBER	356	322	392	746	
TOTAL	2,068	4,138	5,060	6,838	7,541

*DWI arrest activity is estimated by summing the chemical tests analyzed by the State Chemical Laboratory for DWI arrests and the number of "refusals" processed by the Department of Public Safety. A "refusal" refers to an individual who was arrested for DWI and refused to submit to a chemical test to determine his BAC.

Source: Department of Health: State Chemical Laboratory
Department of Public Safety: Driver Improvement Program

APPENDIX B

IV. Tables

TABLE B-1
AGE GROUP OF PERSONS
KILLED AND INJURED
1983

	<u>KILLED</u>	<u>INJURED</u>
0 - 5	5	195
6 - 13	5	385
14 - 15	5	246
16 - 18	12	836
19 - 20	10	590
21 - 24	22	923
25 - 34	35	1,141
35 - 44	17	644
45 - 54	18	384
55 - 64	17	356
65 & Over	27	454
Unknown	2	110
Total	<u>175</u>	<u>6,264</u>

Source: Department of Commerce & Regulation: Accident Records

TABLE B-2
VEHICLE TYPES INVOLVED IN ACCIDENTS
1983

	<u>All</u> <u>Accidents</u>		<u>PDO</u> <u>Accidents</u>		<u>Fatal</u> <u>Accidents</u>		<u>Injury</u> <u>Accidents</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Passenger cars, pickups, vans	22,626	91.0	16,776	93.3	156	72.6	5,694	85.4
Trucks (All)	1,207	4.9	798	4.4	33	15.3	376	5.6
Motorcycle	590	2.4	68	0.4	14	6.5	508	7.6
Farm Machinery or Heavy Equipment	121	0.5	82	0.5	7	3.3	32	0.5
Bus	84	0.3	63	0.4	2	0.9	19	0.3
Motorhome	52	0.2	41	0.2	2	0.9	9	0.1
Moped	8	0.0	0	0.0	0	0.0	8	0.1
Snowmobile	3	0.0	0	0.0	0	0.0	3	0.1
Other or Unknown	168	0.7	148	0.8	1	0.5	19	0.3
Total	<u>24,859</u>	<u>100.0</u>	<u>17,976</u>	<u>100.0</u>	<u>215</u>	<u>100.0</u>	<u>6,668</u>	<u>100.0</u>

Source: Department of Commerce & Regulation: Accident Records

TABLE B-3
ACCIDENTS
BY TIME OF DAY
1983

Time	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Killed	Injured
MIDNIGHT	445	3	134	308	3	193
1:00 AM	472	8	182	282	8	274
2:00 AM	434	8	167	259	8	234
3:00 AM	227	5	79	143	5	112
4:00 AM	124	2	49	73	2	65
5:00 AM	151	1	47	103	1	57
6:00 AM	256	4	71	181	4	102
7:00 AM	538	4	149	385	4	196
8:00 AM	656	3	140	513	3	222
9:00 AM	570	6	140	424	6	207
10:00 AM	653	9	158	486	13	246
11:00 AM	719	5	173	541	10	257
12:00 PM	808	10	215	583	12	330
1:00 PM	794	4	224	566	5	331
2:00 PM	870	8	224	638	8	331
3:00 PM	1,172	6	340	826	8	531
4:00 PM	1,168	5	323	840	5	475
5:00 PM	961	10	292	659	12	493
6:00 PM	747	7	214	526	9	315
7:00 PM	683	9	195	479	16	295
8:00 PM	554	7	155	392	7	242
9:00 PM	593	3	160	430	4	246
10:00 PM	567	6	145	416	7	228
11:00 PM	545	11	159	375	12	251
Unknown	180	3	27	150	3	31
Total	14,887	147	4,162	10,578	175	6,264

Source: Department of Commerce & Regulation: Accident Records

TABLE B-4
ACCIDENTS
BY MONTH
1983

Month	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Killed	Injured
JANUARY	1,299	7	326	966	8	487
FEBRUARY	896	8	252	636	9	353
MARCH	1,094	11	281	802	13	438
APRIL	919	8	289	622	9	484
MAY	1,060	17	337	706	17	533
JUNE	1,144	15	362	767	16	537
JULY	1,249	18	454	777	24	679
AUGUST	1,206	15	446	745	16	668
SEPTEMBER	1,132	19	363	750	23	556
OCTOBER	1,291	9	347	935	13	499
NOVEMBER	1,564	15	342	1,207	22	531
DECEMBER	<u>2,033</u>	<u>5</u>	<u>363</u>	<u>1,665</u>	<u>5</u>	<u>499</u>
TOTAL	14,887	147	4,162	10,578	175	6,264

Source: Department of Commerce & Regulation:Accident Records

TABLE B-5
ACCIDENTS
BY DAY OF WEEK
1983

Day	Total Accd.	Fatal Accd.	Injury Accd.	PDO Accd.	Killed	Injured
SUNDAY	1,814	22	566	1,226	34	879
MONDAY	1,956	23	526	1,407	25	799
TUESDAY	2,130	13	564	1,553	16	835
WEDNESDAY	2,035	10	578	1,447	11	853
THURSDAY	1,983	25	545	1,413	29	795
FRIDAY	2,484	25	663	1,796	27	996
SATURDAY	<u>2,485</u>	<u>29</u>	<u>720</u>	<u>1,736</u>	<u>33</u>	<u>1,107</u>
TOTAL	14,887	147	4,162	10,578	175	6,264

Source: Department of Commerce & Regulation:Accident Records

TABLE B-6
ACCIDENTS DURING HOLIDAYS
1975-1983

<u>Holiday</u>	<u>Total Hours</u>	<u>Total Accd.</u>	<u>Fatal Accd.</u>	<u>Injury Accd.</u>	<u>Killed</u>	<u>Injured</u>
<u>MEMORIAL DAY</u>						
1975	78	125	2	39	3	78
1976	78	135	1	47	1	74
1977	78	147	1	46	1	75
1978	78	146	1	54	1	84
1979	78	144	3	60	3	91
1980	78	128	5	46	12	71
1981	78	129	3	48	3	65
1982	78	129	2	45	2	75
1983	78	119	4	43	4	77
<u>FOURTH OF JULY</u>						
1975	78	136	5	62	6	108
1976	78	175	3	51	3	79
1977	78	169	5	70	6	115
1978	102	241	2	108	3	171
1979	30	60	0	27	0	40
1980	78	166	3	56	3	86
1981	78	174	2	63	2	97
1982	78	160	1	64	1	106
1983	78	136	1	46	1	82
<u>LABOR DAY</u>						
1975	78	126	3	47	3	80
1976	78	181	4	68	4	93
1977	78	179	3	70	3	108
1978	78	150	2	66	2	112
1979	78	140	1	55	1	83
1980	78	108	2	35	2	65
1981	78	149	2	68	2	105
1982	78	134	1	62	1	100
1983	78	132	5	48	6	71

<u>Holiday</u>	<u>Total Hours</u>	<u>Total Accd.</u>	<u>Fatal Accd.</u>	<u>Injury Accd.</u>	<u>Killed</u>	<u>Injured</u>
<u>THANKSGIVING</u>						
1975	102	179	0	39	0	57
1976	102	228	2	56	2	96
1977	102	278	0	66	0	95
1978	102	316	2	76	2	122
1979	102	223	3	48	3	67
1980	102	192	3	63	8	94
1981	102	197	0	39	0	54
1982	102	184	2	47	2	67
1983	102	210	2	44	3	71

CHRISTMAS

1975	102	184	1	41	1	62
1976	78	116	5	37	10	71
1977	78	206	1	58	4	89
1978	78	149	1	40	1	66
1979	102	162	4	53	4	80
1980	102	222	3	58	3	92
1981	78	103	3	21	3	42
1982	78	198	1	42	1	72
1983	78	155	0	30	0	47

NEW YEARS

1975-76	102	197	2	42	2	61
1976-77	78	197	2	43	2	56
1977-78	78	254	4	61	4	94
1978-79	78	139	1	34	1	44
1979-80	102	204	3	62	5	91
1980-81	102	169	1	58	1	106
1981-82	78	147	1	32	1	42
1982-83	78	137	2	29	2	39
1983-84	78	166	0	41	0	59

Source: Department of Commerce & Regulation: Accident Records

TABLE B-7
DRIVER'S BAC RESULTS
FATAL ACCIDENTS
1983

	<u>Drivers In Fatal Accidents</u>	<u>Percent Total</u>
0.00	68	32.4
0.01 - 0.04	2	0.9
0.05 - 0.09	5	2.4
0.10 and Over	51	24.3
Refusal Test	1	0.5
No Test Given	78	37.1
Results Not Obtained	4	1.9
Unknown	1	0.5
Total	<u>210</u>	<u>100.0</u>

Note: BAC is the blood alcohol concentration.

Source: Department of Commerce & Regulation: Accident Records

TABLE B-8
MOTORCYCLE ACCIDENTS
1969-1983

Year	<u>Motorcycle Accidents</u>			<u>Motorcyclists</u>		<u>Registered</u>	<u>Licensed</u>
	<u>Total</u>	<u>Fatal</u>	<u>Injury</u>	<u>Killed</u>	<u>Injured</u>	<u>Motorcycles</u>	<u>Motorcyclists</u>
1969	193	6		6	212	10,781	
1970	217	8		8	211	11,964	
1971	336	11		13	342	13,865	
1972	314	6		8	312	16,605	
1973	395	13		14	425	19,737	
1974	344	8		9	372	22,964	
1975	377	14	321	14	388	23,980	
1976	465	9	402	9	501	25,058	
1977	495	17	419	19	529	26,560	
1978	523	14	456	14	560	27,590	34,225
1979	597	21	522	22	664	31,102	37,286
1980	707	17	608	18	763	35,045	41,431
1981	697	15	598	15	729	38,265	43,170
1982	548	12	473	13	581	38,418	Not Available
1983	572	12	488	12	590	39,255	45,544

Source: Department of Commerce & Regulation: Accident Records

TABLE B-9
PEDESTRIAN FATALITIES AND INJURIES
1970-1983

<u>Year</u>	<u>Fatalities</u>	<u>Injuries</u>
1970	17	158
1971	15	170
1972	30	199
1973	21	161
1974	25	158
1975	11	179
1976	24	158
1977	21	164
1978	15	185
1979	16	167
1980	21	162
1981	20	130
1982	16	146
1983	20	139

Source: Department of Commerce & Regulation:Accident Records

TABLE B-10
BICYCLE FATALITIES AND INJURIES
1970-1983

<u>Year</u>	<u>Fatalities</u>	<u>Injuries</u>
1970	3	67
1971	4	90
1972	2	94
1973	4	82
1974	2	115
1975	1	108
1976	3	99
1977	7	89
1978	3	82
1979	4	96
1980	0	78
1981	0	83
1982	1	93
1983	1	100

Source: Department of Commerce & Regulation:Accident Records

APPENDIX C

VII. 1984 Legislative Summary Of Highway Safety Issues

HB 1086 -- PASSED

Requires every parent or legal guardian of a child under five (5) years of age to properly secure the child in a restraint system when transporting the child on the streets and highways. A child at least two and under five years of age may be secured in a seat belt. Any parent or legal guardian violating this law shall be given a hazard warning by the law enforcement officer. No other penalty may be assessed. Exemptions to this law include: drivers licensed in another state, when the child's needs are being attended to by someone other than the driver, if all seating positions equipped with safety seats or seat belts are occupied, and in passenger cars manufactured before 1966 that are not equipped with seat belts.

HB 1026 -- PASSED

Raises the legal age for consumption, sale, or serving for low-point beer to nineteen. SDCL 35-6 AND 35-9

HB 1147 -- PASSED

Requires the Department of Commerce and Regulation to revoke the operator's license following a DWI conviction to the extent that the operator's privileges of driving should have been revoked and if the operator had been charged and convicted consistent with the records of the Department of Commerce and Regulation, i.e., C&R will revoke the license for one year if its records show a 2nd DWI conviction within the past five years regardless of whether the person was only convicted of a first offense DWI. SDCL 32-12-52.1

HB 1351 -- PASSED

Requires that any fee for service of a Police Demand Order be collected by the driver license examiner when the person submits an application for a license. SDCL 32-12-68

SB 149 -- PASSED

Revises the offense of reckless driving to include driving carelessly and needlessly upon a highway or alley or upon the property of a public or private school, college, or university. Also creates the offenses of careless and exhibition driving. Careless includes driving carelessly without due caution, at a speed or in a manner so as to endanger any person or property, not amounting to reckless driving. Exhibition driving includes driving in such a manner that creates or causes unnecessary engine noise, tire squeal, skid or slide upon acceleration or stopping, or that simulates a temporary race, or that causes the vehicle to unnecessarily turn abruptly or sway. Careless and exhibition driving are Class 2 misdemeanors. SDCL 32-24-1